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## COVID-19 and telehealth: a window of opportunity and its challenges

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**Abstract:** The rapid spread of SARS-CoV-2 has activated the world's "emergency breaks", forcing a slowdown of unprecedented magnitude. As a new temporary "normal" settles in, healthcare systems are making enormous efforts to adjust and mitigate the damage. These adaptation processes accelerate the use of health technologies that were on previously slow adoption paths, including telehealth. Telehealth, or telemedicine, is the use of information and communication technology to provide remote care, outside traditional healthcare contexts [1]. Disrupted healthcare systems and the need for physical distancing seem to open a window of opportunity for a broader exposure to telehealth solutions, many of which might have the potential to improve care long after the pandemic passes. As the evidence on the effectiveness, as well as cost-effectiveness of telemedicine, is mounting, harnessing its benefits post-COVID-19 will require careful consideration of arising opportunities, as well as timely, proactive action on existing challenges [1–5].

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## COVID-19 and telehealth: a window of opportunity and its challenges

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The rapid spread of SARS-CoV-2 has activated the world's "emergency breaks", forcing a slowdown of unprecedented magnitude. As a new temporary "normal" settles in, healthcare systems are making enormous efforts to adjust and mitigate the damage. These adaptation processes accelerate the use of health technologies that were on previously slow adoption paths, including telehealth. Telehealth, or telemedicine, is the use of information and communication technology to provide remote care, outside traditional healthcare contexts [1].

Disrupted healthcare systems and the need for physical distancing seem to open a window of opportunity for a broader exposure to telehealth solutions, many of which might have the potential to improve care long after the pandemic passes. As the evidence on the effectiveness, as well as cost-effectiveness of telemedicine, is mounting, harnessing its benefits post-COVID-19 will require careful consideration of arising opportunities, as well as timely, proactive action on existing challenges [1–5].

### A window of opportunity

Compared with other European countries, Switzerland offers a relatively mature telemedical ecosystem. Nonetheless, the provision of telehealth services is primarily limited to some of the country's large telemedical providers, reporting about 2.5 million annual consultations [6]. On the other hand, the uptake of telemedicine by the wider Swiss medical community (e.g., general practitioners) has remained rather stagnant [6]. How has this changed since COVID-19 started spreading?

With our health system focusing on COVID-19 damage, physical proximity is being replaced by distancing and limited access to certain types of care, aiming to safeguard physical space, minimise nosocomial SARS-CoV-2 infections, and reduce exposure risk related to travel and public transport [7]. During restriction measures, providers and patients alike will have to balance between providing or receiving care and minimising risk. This paradigm shift forces a re-evaluation of the patient-doctor relationship and highlights the need for alternative modes to access care, including nonpharmacological and complementary therapies. The longer the pandemic lasts, the likelier it is that this need will increase overall readiness for exploring and

experimenting with telemedical solutions, especially after the limits of telephone consultations become apparent [8]. This generates a momentum for telehealth suppliers and advocates, allowing them to prove the direct value of the very products they have been long trying to establish.

In fact, the deployment of telehealth during this crisis can be manifold. Tele-triaging enables the remote pre-screening of potentially infected patients and eliminates unnecessary transmission risks [9, 10]. Using artificial-intelligence-driven chatbots, such as the Swiss-Italian project COVID-Guide, symptomatic patients can rapidly self-assess their health status and receive recommendations on how to proceed [11]. Once a mild case is confirmed (or suspected), telemonitoring offers a safe and reliable alternative for overseeing disease progress. Breathlessness and anxiety can be assessed using audiovisual cues, oropharyngeal inflammation and skin colour changes using video recordings, and vital signs using wearable device readings [12]. The use of wearables and other commercial self-monitoring devices does not come without challenges and uncertainties [12]. There is an abundance of these technologies, most of which are not approved medical devices, differ in their measuring accuracy and make any judgement on their validity difficult. Nonetheless, for the chronically ill patients, who face reduced access to their routine care (e.g., physiotherapy and other nonpharmacological, medical or complementary therapies), telemedicine can fill the gaps and potentially avert deteriorating physical and mental outcomes [5, 13, 14]. Prerequisite for this is that telehealth is utilised by a wider range of healthcare professionals (e.g., physiotherapists or psychotherapists) than it currently is.

Acknowledging these opportunities, as well as the likely scenario of future COVID-19 waves, Switzerland is lobbying for increased use of its already well-established telemedical infrastructure. The Swiss association of medical doctors (FMH) partnered up with a video conference provider, enabling access to free and relatively simple remote care services, while also providing a transparent service communication channel for other telehealth manufacturers [15]. Experts agree that telehealth solutions, if adopted properly, can contribute towards flattening the curve of current and future COVID-19 epidemic waves.

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Harnessing these opportunities, during and after the crisis, requires targeted and proactive action on remaining challenges.

### Understanding the challenges

Although COVID-19 likely increases exposure to telehealth, the long-term willingness to use telemedical solutions largely depends on addressing some of the barriers that healthcare providers face. Swiss doctors perceive some of the main health digitalisation hurdles to be (1) the lack of interoperability with their own systems, (2) security and liability concerns, (3) the inadequate representation of digital services in reimbursement tariffs, as well as (4) concerns about too much or too little work [16]. Uncertainties around reimbursement and liability might well be due to inadequate communication of existing regulations, and security concerns are potentially fuelled by the scarcity of simple solutions that still fully address data protection and privacy [16]. This also holds for applications listed in the recent COVID-19-related communication of the FMH [15]. The lack of fully transparent risk assessments and adequate security functionalities (e.g., mandatory password protections) for the listed applications leaves room for improvement. In addition, consideration of the demographics of Swiss doctors suggests that some may lack the necessary digital affinity and possibly the technical skills for the adoption of telehealth, which also is the case in other healthcare systems [1, 7, 16, 17]. Added to that, many of the existing solutions, including some that were listed in the recent FMH communication, are still subject to technical, usability and resource barriers (e.g., limited to a certain internet browser, requiring downloads and monthly subscriptions) [15]. In combination, perceived barriers and digital literacy gaps understandably feed scepticism and resistance.

On the patient side, two remaining and yet not adequately addressed challenges are rooted in the digital divide and mistrust. The digital divide describes a systematic gap between those who benefit more and those who benefit less from digitalisation processes. In health, the current divide is based on knowledge and self-efficacy differences regarding technology use, as well as on overall health literacy gaps, dividing those who are able to utilise technology for improving their health and those who are not [18]. Being older, of lower socioeconomic status, a minority or of lower educational background are, amongst others, key drivers of that divide [1]. In parallel, the Swiss public's scepticism on data use, privacy and security seems to be on an overall increase, naturally blurring trust and the perceived value of health technology [19].

With a focus on patients and providers, the contextual limitations of our current telehealth ecosystems tend to be overlooked. Although we overemphasise the effectiveness and efficiency of health digitalisation, we often pay less attention to the organisational processes. The integration of telemedicine into routine practice requires substantial alterations to established workflows and infrastructures, which present disincentivising time, resource, and flexibility demands [1, 20]. Healthcare systems are complex and dynamic, with adaptations taking time and requiring patience and motivation [9], [20]. All these elements may

pose important barriers to the uptake of new technology, including telehealth.

### Moving forward

In order to enable a broader use (e.g., by general practitioners, physiotherapists), developers, advocates, and policy-makers need to address the concerns and uncertainties of healthcare providers. This requires improved awareness of and access to low-threshold technologies (e.g., secure video conferencing and chat systems), allowing an integration that minimises disruption and effort. Some disruption and effort cannot be entirely eliminated, but may be kept low through context-sensitive telehealth solutions that are (1) technically versatile and simple (e.g., no downloads, no browser restrictions, no lengthy registration procedures), (2) adjustable to different workflows (e.g., flexible documentation protocols, rapid switches between on-site and remote patients) and (3) not bound to direct long-term commitment (e.g., no annual subscriptions). The security and privacy regulations of these tools need to be expanded and communicated transparently, as should reimbursement and liability policies. Access to free training and targeted awareness of the fact that telemedicine does not aim to replace on-site care should be aimed towards healthcare providers lacking literacy skills and with disproportionate digitalisation fears. For that, it is key to listen to the concerns and challenges of those providers that have already started using telemedicine; while learning from their experience and helping them maintain it.

In order to enable a broader acceptance by patients, and especially those needing it most (e.g., elderly, chronically ill people) we require an explicit and targeted nudging towards telehealth. Education and awareness are simple but powerful tools, especially for those less familiar with technology. Access to intuitive telemedical software should be accompanied by simple guidelines on its proper use and transparent information on privacy and security. Providers that offer telemedicine should ensure that these services are inclusive and clearly communicated to those patients who might be most affected by COVID-19's disruptions. During the crisis, known technology that is currently also employed by the elderly to stay in touch with close ones, such as Skype, can be leveraged to reach patients not capable of or unwilling to try other technologies. This is certainly not an advisable long-term solution, as many of these widely used video communication systems are not designed for confidential medical consultations. Post-COVID-19, it would be wiser to leverage that increased technology exposure for introducing previously "hard-to-reach" patients to safe and simple telehealth solutions.

In conclusion, the longer the epidemic lasts, the stronger will the need for telehealth be, especially for the most vulnerable among us. The need for physical distancing will keep pushing telehealth into the consciousness and experience sphere of healthcare providers and patients alike. In parallel, it will leave many relying on the use of video technology for maintaining social interactions. Although these daily video communication tools may not be secure enough for confidential patient-doctor communications, they may contribute to a narrower digital divide, improved technological skills, and reduced resistance to the use of remote care, opening a window of opportunity for realising

the advantages of telehealth. However, if we are to maintain these beyond COVID-19, we cannot ignore the challenges that come along. These challenges have to be addressed in a timely and proactive manner, with the education of patients and physicians about the safe use of digital communication tools and video conferencing systems at their core.

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